

**NEW TYPE N COAXIAL CONNECTORS: MIL-Crimp AND MIL-Clamp**

Amphenol's new Type N connector, electrically identical in both field-serviceable and crimp versions is a "first" in the coaxial connector industry. Design engineers can now specify a crimp or field-serviceable connector interchangeable in prototype, production or field applications with the same superior electrical performance and cable stripping dimensions.

Equally significant, these "N" connectors are the first to meet the Class II rating of Mil-C-39012, the new all-service specification covering coaxial connectors, which will eventually obsolete existing connector specifications. (The Type N specification sheets for Mil-C-39012 will be the only governing military specifications for this series after appropriate action by Department of Defense.)

CRIMP COST SAVINGS PLUS FIELD-SERVICEABLE EASE

Until this development, no crimp type "N" connector has met a coordinated military specification. Because of this, military designers have not been able to take advantage of the significant cost savings that crimp units offer for long run production. The Amphenol "N" units offer not only the time and cost savings of crimp assembly (30 seconds vs. five minutes or longer for a solder-type "N") but they also eliminate the electronic problems involved in using a standard field-serviceable connector for "prototypes" and then switching over to a crimp unit for production. Designers no longer have to be concerned with differing VSWR and other electrical properties in making the changeover from prototype to production, since both versions of the "N" are electrically identical.

Cable stripping dimensions for both versions also are the same, eliminating another problem in prototype-to-production change-over.

Similarly, the identical electrical performance and same cable stripping dimensions permit field replacement of a "production assembled" crimp connector with a field-serviceable unit without

the use of special tools.

ELECTRICAL CHARACTERISTICS EXCEED MIL-SPEC

Impedance of the connectors is 50 ohms; voltage rating is 1000 v rms; and specified frequency range extends up to 10 GHz. The "N" specification sheets of MIL-C-39012 call for a VSWR of 1.35:1 maximum. Tests conducted by Amphenol in their government approved laboratories have shown the new "N" units to have a maximum VSWR of 1.12:1. Cable retention exceeds the specification requirement of 75 lb. Retention rating is equal to the strength of the cable braid, since the connector can only be pulled off by breaking the braid. Operating temperature is 200°C maximum. Both the field serviceable and crimp versions have fully captivated center contacts.

The center contact is gold plated, dielectric is Teflon, and all other metal parts are silver plated. Mating face dimensions for both connector versions are, of course, identical. It is possible to mate a male crimp connector with a female field-serviceable unit and vice versa. Both versions also mate with all Type "N" connectors presently in use.

BOTH VERSIONS EASY TO ASSEMBLE

The crimp version, known as MIL-CRIMP, has three basic parts: connector body, center contact and outer ferrule. After the center contact is crimped (or soldered) to the cable, the body is slipped on, the outer ferrule placed over the braid and crimped. No combing of the braid is required and one tool performs all crimps on these new MIL-CRIMP connectors.

The field-serviceable connector, known as MIL-CLAMP, also is assembled easily. No combing of braid is required, reducing the assembly time to a fraction of that required by a standard UG type "N" connector. Chances of accidental shorting are eliminated.





AMPHENOL TYPE N COAXIAL CONNECTORS

ELECTRICAL AND MECHANICAL

Impedance	50 ohms
Voltage Rating	1000 volts RMS maximum
Dielectric Withstanding Voltage	2500 volts RMS at sea level
Frequency Range	0 to 10 GHz
VSWR	1.35:1 max. per MIL spec. 1.12:1 max. per Amphenol tests (soldered contact)
RF Withstanding Voltage	1500 volts RMS at 5 Mc
RF Leakage	-90 db minimum
Insertion Loss	.05 db maximum at 10 GHz
Insulation Resistance	5000 megohms min. per MIL spec.
Operating Temperature	>500,000 megohms per Amphenol tests
Cable Retention	200°C maximum
Corrosion (Salt Spray)	75 lbs. min. per MIL spec.
Material	90-120 lbs. per Amphenol tests (equal to cable's braid strength)
Dielectric	— teflon
Male contact and body	— brass
Female and outer contact	— phosphor bronze
Outer ferrule	— copper
Center contact	— gold
Plating	All other metal parts silver

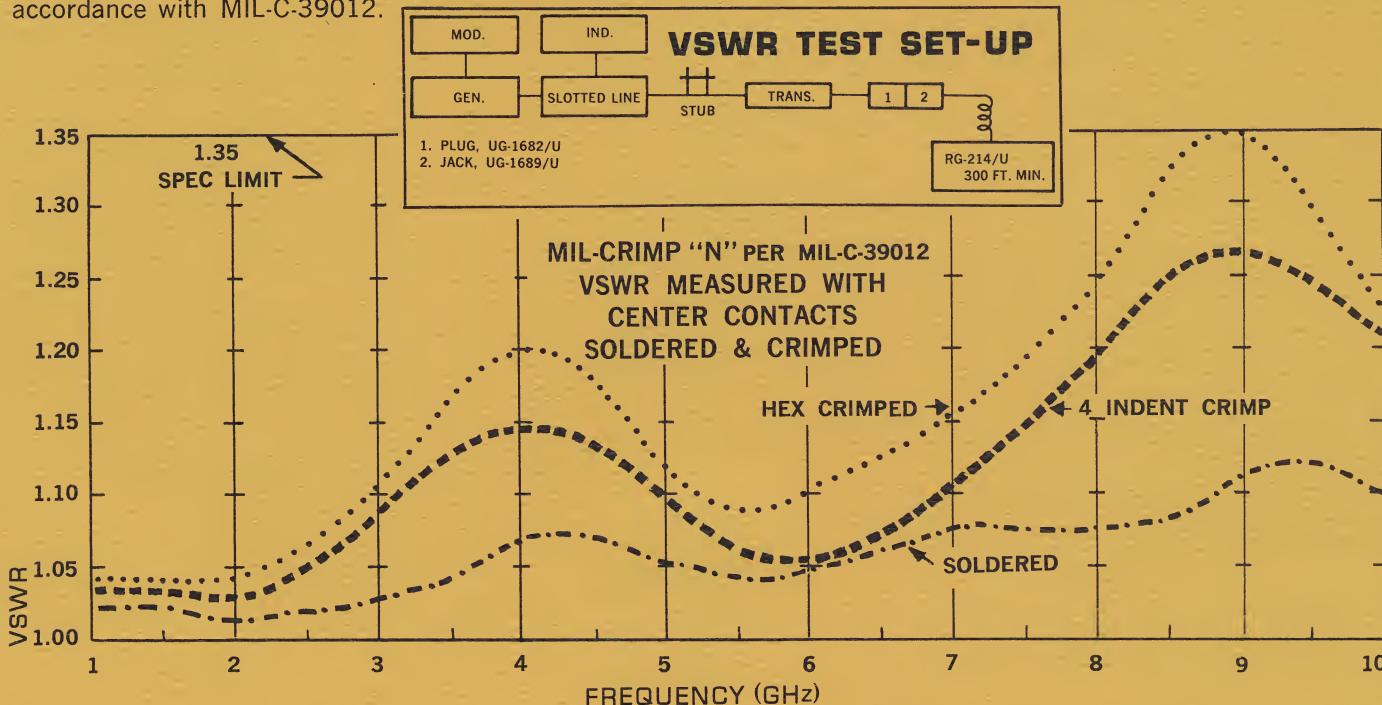
AVAILABLE FROM STOCK

Amphenol's complete line of MIL-Crimp and MIL-Clamp Type N connectors includes plugs, angle plugs, jacks, panel jacks, and bulkhead jacks for a wide variety of cables plus panel and bulkhead receptacles. All are available from stock through your local Amphenol Distributor or Amphenol Sales Engineer.

If you are presently specifying a standard UG Type N and wish to convert to its MIL-Crimp or MIL-Clamp counterpart, consult the cross-reference included in the part number listings shown on opposite page.

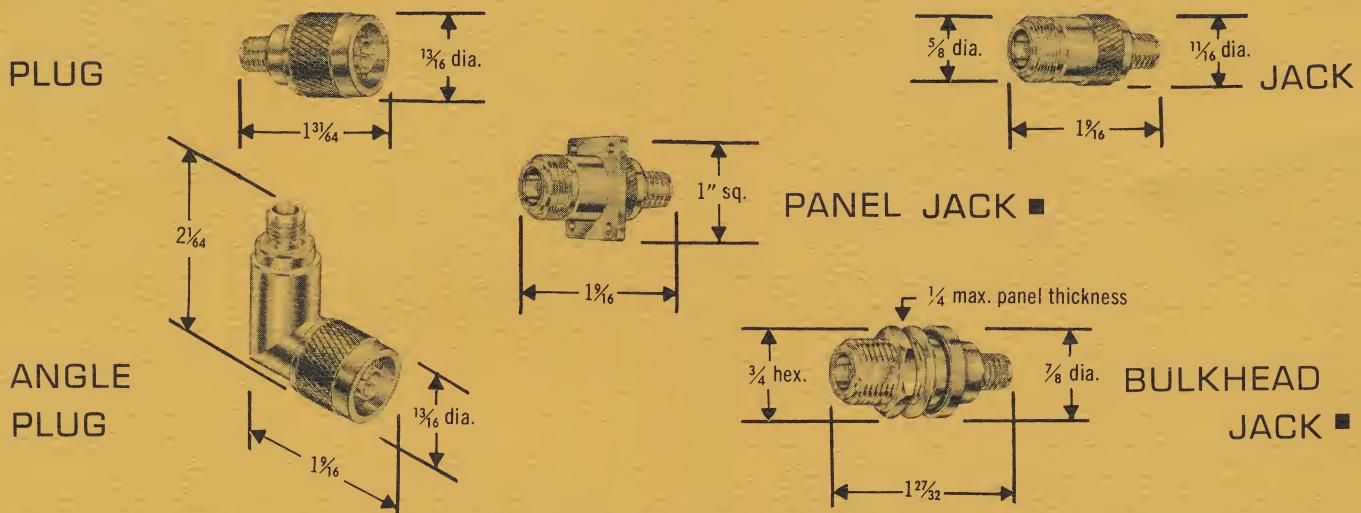
VSWR CURVES

Mated Amphenol MIL-Crimp N plugs and jacks, P/N 82-332 and 82-333, with RG-214/U Cable were tested in accordance with MIL-C-39012.



MIL-Crimp**AMPHENOL QUICK-CRIMP**

Note: Overall length dimensions include outer ferrule not shown on illustration.

**PLUGS** for use with RG/U Cable

	UG/U no.	M39012/ designation	AMPHENOL part no.
8,8A,213	1681	01-0007	82-340
9,9A,9B,214	1682	01-0008	82-332
11,11A,149	1695	01-0013	82-342
55,55A,55B,142,142B,223	none	none	82-5370
58,58A,58B,58C,141,141A	none	none	82-5375
59,59A,59B,62,62A,62B,62C,140	none	none	82-5380
143,212,222	1680	01-0006	82-341

ANGLE PLUGS for use with RG/U Cable

8,8A,213	1707	05-0002	82-349
9,9A,9B,214	1708	05-0003	82-336
11,11A,149	none	none	82-5351
55,55A,55B,142,142B,223	none	none	82-5374
58,58A,58B,58C,141,141A	none	none	82-5379
143,212,222	none	none	82-5350

JACKS for use with RG/U Cable

8,8A,213	1688	02-0008	82-337
9,9A,9B,214	1689	02-0009	82-333
11,11A,149	1694	02-0014	82-339
55,55A,55B,142,142B,223	none	none	82-5371
58,58A,58B,58C,141,141A	none	none	82-5376
143,212,222	1687	02-0007	82-338

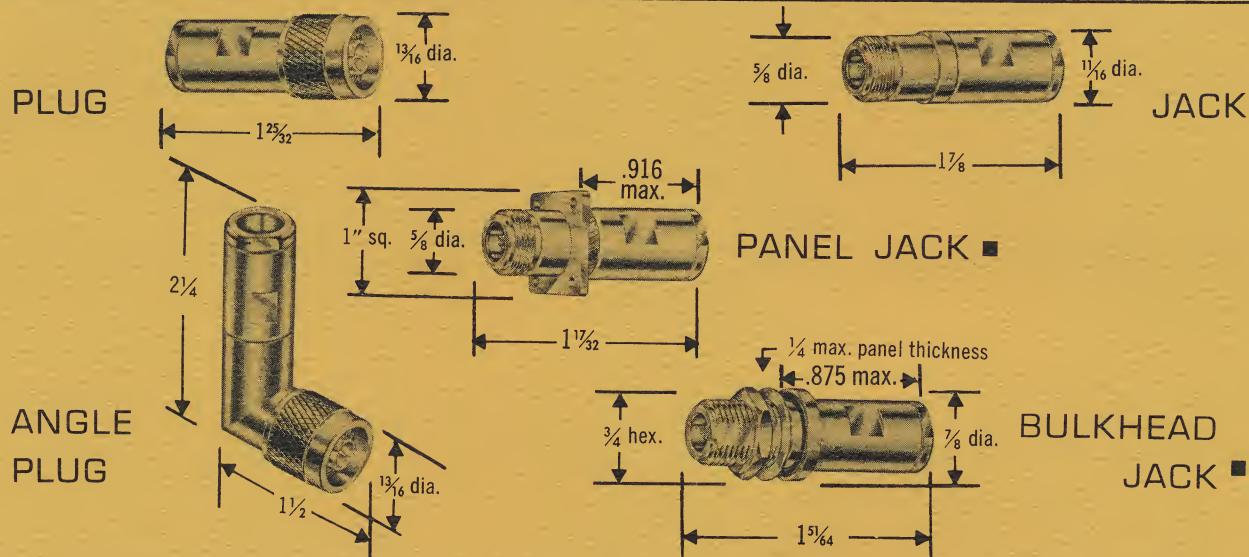
PANEL JACKS for use with RG/U Cable

8,8A,213	1697	02-0016	82-343
9,9A,9B,214	1698	02-0017	82-334
11,11A,149	none	none	82-5345
55,55A,55B,142,142B,223	none	none	82-5372
58,58A,58B,58C,141,141A	none	none	82-5377
143,212,222	1696	02-0015	82-344

BULKHEAD JACKS for use with RG/U Cable

8,8A,213	1700	03-0004	82-346
9,9A,9B,214	1701	03-0005	82-335
11,11A,149	1706	03-0010	82-348
55,55A,55B,142,142B,223	none	none	82-5373
58,58A,58B,58C,141,141A	none	none	82-5378
143,212,222	1699	03-0003	82-347

MIL-Clamp FIELD SERVICEABLE



PLUGS for use with RG-/U Cable

	UG-U no.	M39012/designation	AMPHENOL part no.
8,8A,9,9A,9B,213,214	1185B	01-0005	82-352
11,11A,149	21H	01-0002	82-352-1
14A,217	none	none	82-5355
17,17A,218	204E	01-0003	82-387
55,55A,55B,58,58A,58B,58C,141,141A,142,142B,223	167G	01-0004	82-388
59,59A,59B,62,62A,62B,62C,140	none	none	82-5381
143,212,222	18F	01-0001	82-5386

ANGLE PLUGS for use with RG-/U Cable

8,8A,9,9A,9B,213,214	594C	05-0001	82-357
11,11A,149	none	none	82-5353
55,55A,55B,58,58A,58B,58C,141,141A,142,142B,223	none	none	82-5385
143,212,222	none	none	82-5361

JACKS for use with RG-/U Cable

8,8A,9,9A,9B,213,214	1186B	02-0003	82-356
11,11A,149	23G	02-0002	82-356-1
55,55A,55B,58,58A,58B,58C,141,141A,142,142B,223	none	none	82-5359
143,212,222	none	none	82-5382
	20F	02-0001	82-358

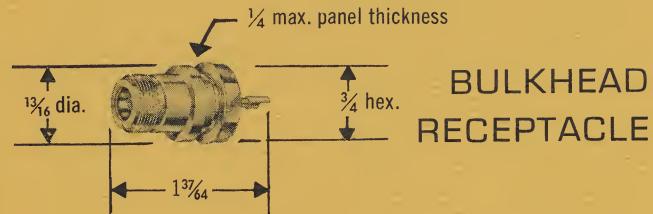
PANEL JACKS for use with RG-/U Cable

8,8A,9,9A,9B,213,214	1187B	02-0006	82-360
11,11A,149	22G	02-0005	82-360-1
55,55A,55B,58,58A,58B,58C,141,141A,142,142B,223	none	none	82-5363
143,212,222	none	none	82-5383
	19F	02-0004	82-362

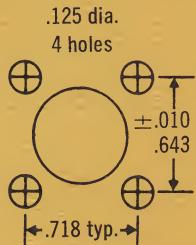
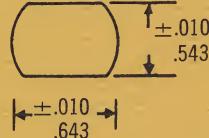
BULKHEAD JACKS for use with RG-/U Cable

8,8A,9,9A,9B,213,214	160E	03-0002	82-364
11,11A,149	none	none	82-5365
55,55A,55B,58,58A,58B,58C,141,141A,142,142B,223	none	none	82-5384
143,212,222	159D	03-0001	82-366

■ See following page for mounting hole dimensions.

**PANEL
RECEPTACLE****BULKHEAD
RECEPTACLE**

Receptacles	UG-/U no.	M39012/ designation	AMPHENOL part no.	notes
Panel Bulkhead	58B 680B	04-0002 04-0001	82-368 82-369	Solder Terminal Front Mount hermetically sealed Solder Terminal

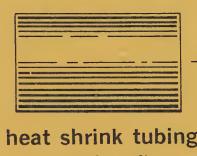
MOUNTING HOLES**PANEL JACKS
AND
RECEPTACLES****BULKHEAD
JACKS AND
RECEPTACLES****MILITARY NUMBER CROSS-REFERENCE**

UG-/U number	M39012/ designation	description	AMPHENOL part no.	UG-/U number	M39012/ designation	description	AMPHENOL part no.
18F	01-0001	Plug, FS	82-354	1681	01-0007	Plug, QC	82-340
19F	02-0004	Panel Jack, FS	82-362	1682	01-0008	Plug, QC	82-332
20F	02-0001	Jack, FS	82-358	1687	02-0007	Jack, QC	82-338
21H	01-0002	Plug, FS	82-352-1	1688	02-0008	Jack, QC	82-337
22G	02-0005	Panel Jack, FS	82-360-1	1689	02-0009	Jack, QC	82-333
23G	02-0002	Jack, FS	82-356-1	1694	02-0014	Jack, QC	82-339
58B	04-0002	Panel Recpt.	82-368	1695	01-0013	Plug, QC	82-342
159D	03-0001	Bulkhead Jack, FS	82-366	1696	02-0015	Panel Jack, QC	82-344
160E	03-0002	Bulkhead Jack, FS	82-364	1697	02-0016	Panel Jack, QC	82-343
167G	01-0004	Plug, FS	82-388	1698	02-0017	Panel Jack, QC	82-334
204E	01-0003	Plug, FS	82-387	1699	03-0003	Bulkhead Jack, QC	82-347
594C	05-0001	Angle Plug, FS	82-357	1700	03-0004	Bulkhead Jack, QC	82-346
680B	04-0001	Bkh. Recpt.	82-369	1701	03-0005	Bulkhead Jack, QC	82-335
1185B	01-0005	Plug, FS	82-352	1706	03-0010	Bulkhead Jack, QC	82-348
1186	02-0003	Jack, FS	82-356	1707	05-0002	Angle Plug, QC	82-349
1187B	02-0006	Panel Jack, FS	82-360	1708	05-0003	Angle Plug, QC	82-336
1680	01-0006	Plug, QC	82-341				



CABLE ASSEMBLY INSTRUCTIONS

MIL-Crimp



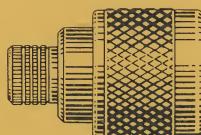
heat shrink tubing
(optional)



outer ferrule



contact

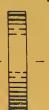


body assembly

MIL-Clamp



clamp
nut



gasket



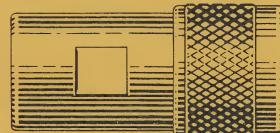
braid
ferrule



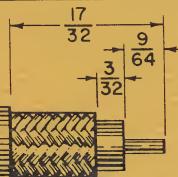
braid
clamp



contact

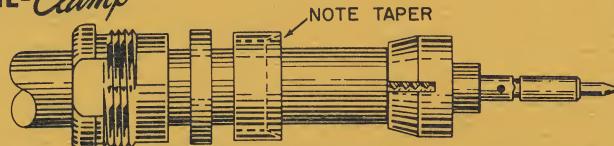


body assembly

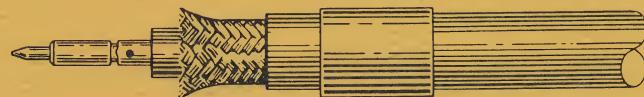


Strip cable jacket, braid, and dielectric to dimensions shown. All cuts are to be sharp and square. **Important:** Do not nick braid, dielectric, and center conductor. Tinning of center conductor is not necessary if contact is to be crimped. For solder method, tin center conductor avoiding excessive heat.

MIL-Clamp



MIL-Crimp



Place contact on cable center conductor so that it butts against cable dielectric. Center conductor should be visible through inspection hole in contact. Crimp or solder contact in place as follows:

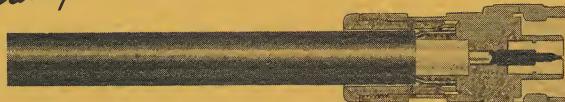
HEX-CRIMP: Use Amphenol tool no. 227-100 (cavity F) or no. 227-125 (cavity H). Die has two cavities; the smaller of the two is used to crimp center contact. Place contact groove into forked locator and crimp. (See **Tool Information** note.)

FOUR-INDENT CRIMP: Use Amphenol tool no. 227-932-2 with nest bushing supplied. (To order tool components separately, specify frame no. 227-1189; nest bushing no. 227-1194.)

SOLDER METHOD: Soft solder contact to cable center conductor. Do not get any solder on outside surface of contact. Avoid excessive heat to prevent swelling of dielectric.

Slide components onto cable as shown. **Important: DO NOT** comb out braid.

MIL-Clamp



MIL-Crimp



Install cable assembly into body assembly so that inner ferrule portion slides under braid. Push cable assembly forward until contact snaps into place in insulator.

MIL-CLAMP (FIELD SERVICEABLE): Position of braid clamp should be over exposed braid of cable. Then slide forward as a unit, the braid ferrule (tapered end toward connector), gasket, and clamp nut until initial thread engagement is made. **Important:** Tighten clamp nut until it bottoms on body for maximum cable retention.

MIL-CRIMP (AMPHENOL QUICK-CRIMP): Slide outer ferrule over braid and up against connector body. Crimp outer ferrule with tool specified in table below.

AMPHENOL HEX CRIMP TOOLS for use with RG-/U cable	AMPHENOL tool no. (see note)	AMPHENOL die no. (see note)	DIE CAVITY DESIGNATION	
			outer ferrule	center contact
8,9,11,149,213,214	227-100	227-920-3	E	F
55,58,141,142,223	227-350	227-920-1	A	F of die 227-920-3 or H of die 227-920-4 (both are same size).
59,62,140	227-375	227-920-2	D	
143,212,222	227-125	227-920-4	G	H

HEX CRIMP TOOL INFORMATION: Amphenol's hex crimp tools for center contacts and outer ferrules all have common handle or frame. Dies are interchangeable. Each die has two cavities. With one frame and several dies, it is possible to perform a variety of different size crimp operations. If you order by the tool part no., the die indicated in the table above is supplied along with the frame. It is not necessary to order two complete tools; order JUST the second die. Should you have requirement at later date for an extra tool frame (without die), specify Amphenol no. 227-921.



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